

We claim:

1. An expandable packer for sealing a wellbore, comprising:
an expandable mandrel movable radially outwardly by an applied force from a run in position to a set position;
a sealing element mounted to said mandrel, said mandrel comprises at least one surface irregularity in contact with said sealing element.
2. The packer of claim 1, wherein:
said surface irregularity comprises at least one projection on the mandrel that digs into the sealing element when said mandrel is in said set position.
3. The packer of claim 2, wherein:
said projection increases the internal pressure in said sealing element when said mandrel is in said set position.
4. The packer of claim 1, wherein:
said surface irregularity comprises at least one depression on the mandrel that allows said sealing element to engage the mandrel as said sealing element is forced into said depression when said mandrel is in said set position.
5. The packer of claim 1, further comprising:
at least one slip mounted to said mandrel;
said slip is retained to said mandrel by virtue of at least one surface irregularity on at least one of said mandrel and said slip.
6. The packer of claim 1, further comprising:
at least one slip mounted to said mandrel;

at least one anti-extrusion ring mounted to said mandrel adjacent said sealing element, said anti-extrusion ring mounted in contact with said slip.

7. The packer of claim 5, wherein:

said slip comprises a surface irregularity and said mandrel conforms to the shape of said surface irregularity on said slip when in its said set position.

8. The packer of claim 5, wherein:

said slip and said mandrel both comprise surface irregularities that conform to each other in the run in position of said mandrel.

9. The packer of claim 8, wherein:

said surface irregularities comprise matching undulating surfaces.

10. The packer of claim 5, wherein:

shrinkage of said mandrel as it is forced to said set position in the region of said surface irregularity enhances the grip between the wellbore and said slip.

11. The packer of claim 5, wherein:

said surface irregularity creates a radial component of force into said slip into contact with the wellbore in response to an uphole or downhole directed force on said mandrel with said mandrel in said set position.

12. The packer of claim 6, wherein:

said slip contacts said ring in a manner that provides a wedging of said ring toward said sealing element.

13. The packer of claim 12, wherein:

said ring contacts said slip by way of contacting sloping surfaces such that movement of said mandrel to said set position creates a reaction force through said slip and said sloping surfaces to urge said ring toward said sealing element.

14. The packer of claim 13, wherein:

said sloping surfaces create a longitudinal component of force, acting in the direction of the wellbore, on said sealing element.

15. The packer of claim 6, wherein:

said ring has a generally triangular cross-section when taken in alignment with the wellbore.

16. An expandable downhole tool for use in a wellbore, comprising:

an expandable mandrel movable radially outwardly by an applied force from a run in position to a set position:

at least one slip mounted to said mandrel;

said slip, upon expansion of said mandrel, is retained to said mandrel by virtue of at least one surface irregularity on at least one of said mandrel and said slip.

17. The tool of claim 16, wherein:

said slip comprises a surface irregularity and said mandrel conforms to the shape of said surface irregularity on said slip when in its said set position.

18. The tool of claim 16, wherein:

said slip and said mandrel both comprise surface irregularities that conform to each other in the run in position of said mandrel.

19. The tool of claim 18, wherein:
said surface irregularities comprise matching undulating surfaces.
20. The tool of claim 16, wherein:
shrinkage of said mandrel as it is forced to said set position in the region of said surface irregularity enhances the grip between said mandrel and said slip.
21. The tool of claim 16, wherein:
said surface irregularity creates a radial component of force into said slip into contact with the wellbore in response to an uphole or downhole directed force on the mandrel with said mandrel in said set position.
22. The packer of claim 17, further comprising:
at least one anti-extrusion ring mounted to said mandrel adjacent said sealing element, said anti-extrusion ring mounted in contact with said slip.
23. An expandable packer for sealing a wellbore, comprising:
an expandable mandrel movable radially outwardly by an applied force from a run in position to a set position:
at least one slip mounted to said mandrel;
a sealing element mounted to said mandrel;
at least one anti-extrusion ring mounted to said mandrel adjacent said sealing element, said anti-extrusion ring mounted in contact with said slip.
24. The packer of claim 23, wherein:
said slip contacts said ring in a manner that provides a wedging of said ring toward said sealing element.

25. The packer of claim 24, wherein:

said ring contacts said slip by way of contacting sloping surfaces such that movement of said mandrel to said set position creates a reaction force through said slip and said sloping surfaces to urge said ring toward said sealing element.

26. The packer of claim 25, wherein:

said sloping surfaces create a longitudinal component of force, acting in the direction of the wellbore, on said sealing element.

27. The packer of claim 23, wherein:

said ring has a generally triangular cross-section when taken in alignment with the wellbore.

28. The packer of claim 23, wherein:

said slip is retained to said mandrel by virtue of at least one surface irregularity on at least one of said mandrel and said slip.

29. The packer of claim 28, wherein:

said mandrel comprises at least one surface irregularity in contact with said sealing element.

30. The packer of claim 17, wherein:

said surface irregularity comprises at least one rounded depression on said slip.

31. The packer of claim 23, wherein:

force transmitted to the anti-extrusion ring from the sealing element enhances the grip between the slip and the well bore.

32. The packer of claim 23, wherein:
said slip comprises a first end closer to said anti-extrusion ring and a plurality of wickers thereon, said wickers being more closely spaced near said first end.
33. A method of well completion, comprising:
running in a bit and an expandable packer on tubing;
expanding the packer to close off an annular space around said tubing after drilling.
34. The method of claim 33, comprising:
dropping the bit;
producing through said tubing after expanding said expandable packer.
35. The method of claim 33, comprising:
drilling out a plug in the wellbore.
36. A method of well completion, comprising:
running an expandable packer into a wellbore:
pumping sealing material around the outside of said packer; and
expanding said packer.